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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/649,559	08/28/2000	Keith C. Palermo	GE04567	7676

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EXAMINER	
ODOM, CURTIS B	
ART UNIT	**PAPER NUMBER**
2634	7

DATE MAILED: 05/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/649,559	PALERMO ET AL.	
	Examiner	Art Unit	
	Curtis B. Odom	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 August 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 August 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "intra-transmitter signal transporter **32**" (see Fig. 2). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)

(e) BACKGROUND OF THE INVENTION.
(1) Field of the Invention.
(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(f) BRIEF SUMMARY OF THE INVENTION.
(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(h) DETAILED DESCRIPTION OF THE INVENTION.
(i) CLAIM OR CLAIMS (commencing on a separate sheet).
(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

3. The disclosure is objected to because of the following informalities: There is no "Brief Summary of the Invention" (see arrangement of the specification above). Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 4, 5, 10-12, 14, 15, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Salinger (U.S. Patent No. 6, 304, 594).

Regarding claim 1, Salinger discloses a transmitter (Fig. 2, wherein Fig. 2 can be a transceiver or a modem as recited in column 17, line 6-column 20, line 28 which can be implemented as an upstream module and a downstream module) having programmable transmission parameters temporally aligned with a payload signal (column 17, lines 5-8, wherein the input data stream is the payload signal), the transmitter comprising:

an upstream module (Fig. 2, block 16, column 5, lines 32-47) for receiving an input signal (input data stream) from a signal source, generating a processed signal from the input signal, and mingling the programmable transmission parameters with the processed signal to form a compound signal (column 17, lines 5-16);

an intra-transmitter signal transporter (Fig. 2, block 30) having an input coupled to the upstream module and configured to transport the compound signal to an output of the intra-transmitter signal transporter; and

a downstream module (Fig. 2, block 18, column 6, lines 42-59 and column 17, lines 5-16) having an input coupled to the intra-transmitter signal transporter output, the downstream module being configured to extract the programmable transmission parameters from the compound signal to recover the processed signal and to convert the processed signal into a communication signal configured in accordance with the programmable transmission parameters.

Regarding claim 4, which inherits the limitations of claim 1, Salinger discloses the down stream module generates the communication signal by modulating a carrier signal, the carrier signal exhibiting a frequency specified by the programmable transmission parameters (column 7, lines 5-17), wherein Fig. 2 is apart of a transceiver or modem implemented as a downstream module.

Regarding claim 5, which inherits the limitations of claim 1, Salinger discloses the downstream module generates the communication signal by modulating a carrier signal which is keyed as specified by the programmable transmission parameters (column 7, lines 5-17), wherein the Fig. 2 is apart of a transceiver or modem implemented as a downstream module.

Regarding claim 10, which inherits the limitations of claim 1, Salinger discloses the downstream module (wherein the transceiver of Fig. 2 is implemented as a downstream module) upconverts the processed signal so that the communication signal is a radio frequency signal (column 5, lines 32-47, wherein the carrier frequency is a radio signal frequency); and

the downstream module comprises an RF power amplifier coupled to an antenna, the Rf power amplifier and the antenna being configured to wirelessly broadcast the signal (column 5, lines 41-47), wherein the transmission channel is a wireless transmission channel.

Regarding claim 11, the claimed method includes features corresponding to the above rejection of claim 1 which is applicable hereto.

Regarding claim 12, which inherits the limitations of claim 11, Salinger discloses the transporting activity causes the compound signal to experience varying amounts of delay (column 6, 5, lines 9-26)

Regarding claims 14, 15, and 18, which inherit the limitations of claim 11, the claimed method includes features corresponding to the above rejection of claims 4, 5, and 10 which is applicable hereto.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 6-9, 13, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salinger (U.S. Patent No. 6, 304, 594).

Regarding claim 6, which inherits the limitations of claim 1, Salinger discloses the input signal is a digital data stream and the upstream module is a digital communication modulator which modulates the input signal in accordance with a phase constellation (QAM modulation) to produce the processed signal in a digital form (column 5, lines 32-47).

Salinger does not disclose the downstream module includes a digital-to-analog converter for converting the processed signal so that the communication signal exhibits an analog form. However, it would have been obvious to one skilled in the art at the time the invention was made that the downstream module could have included a DAC to convert the signal to analog form for further analog processing. Digital-to-analog converters are well known in the art and thus implementing a DAC to convert a digital signal to analog form does not constitute patentability.

Regarding claim 7, which inherits the limitations of claim 6, Salinger discloses the digital communication modulator applies first modulation functions at a first point in time on the input signal to generate the processed signal, the first modulation functions being defined by a first set of programming (column 5, lines 32-47);

the digital communication modulator additionally applies second modulation functions at a second point in time on the input signal to generate the processed signal, the second modulation functions being defined by a second set of programming (column 7, lines 5-17).

Salinger does not disclose a transport delay imposed by the digital communication modulator in generating the processed signal from the input signal under the first set of programming differs from a transport delay imposed in generating the processed signal from the input signal under the second set of programming However, it would have been obvious to one of ordinary skill in the art at the time the invention was made using different transmission parameters such as carrier frequencies, symbol rates, and constellation sizes for each input signal would impose different transmission (transpost) delays on each input signal depending on the combination of transmission parameters used to transmit (transport) the signal. Thus, claim 7 does not constitute patentability.

Regarding claim 8, Salinger discloses the downstream module is replaceable independently from the upstream module (Fig. 2, blocks 16 and 18).

Salinger does not disclose the upstream module comprises a connector through

which the compound signal passes to the intra-transmitter signal transporter and the downstream module comprises a connector through which the compound signal passes from the intra-transmitter signal transporter. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that since the intra-transmitter signal transporter of Salinger is any transmission channel (Fig. 2, block 30) that the connectors would depend on the type of transmission channel specified. For example, in a wireless environment, the connectors would be antennas. Thus, the type of connections used in is deemed a design choice based on the design specification and does not constitute patentability.

Regarding claim 9, which inherits the limitations of claim 1, Salinger discloses the downstream module converts the processed signal into the communication signal in response to a clock signal (column 5, lines 47-53, wherein the symbol clock rate is the clock signal).

Salinger does not disclose the transmitter additionally comprises a FIFO memory buffer configured to synchronize the compound signal to the clock signal. However, Salinger does disclose a demodulator used to synchronize the compound signal to the clock signal (column 5, lines 47-53). Therefore, it would have been obvious to one skilled in the art at the time the invention was made that the FIFO buffer could have been implemented into the demodulator to perform this function in the same manner as the demodulator. Thus, claim 9, does not constitute patentability.

Regarding claim 13, Salinger does not disclose prior to the extracting activity, delaying the compound signal in a FIFO memory buffer which imposes varying delays on the compound signal. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that a signal may be delayed for many purposes such as synchronization. Imposing delays on signals is well known in the art and depends on the design specifications of the device. Thus, using a FIFO buffer to delay a signal does not constitute patentability.

Regarding claims 16 and 17 the claimed method includes features corresponding to the above rejection of claims 6 and 7 which is applicable hereto.

8. Claims 2, 3, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salinger (U.S. Patent No. 6, 304, 594) in view of Curtis (U.S. Patent No. 5, 339, 307).

Regarding claim 2, which inherits the limitations of claim 1, Salinger discloses all the limitation of claim 2 (see rejection of claim 1) except for the upstream module is one of a plurality of upstream modules each of which couples to the intra-transmitter signal transporter; the downstream module is one of a plurality of downstream modules each of which couples to the intra-transmitter signal transporter; and the compound signal is one of a plurality of compound signals transported by the intra-transmitter signal transporter.

Curtis discloses a network including a plurality of upstream modules and downstream modules which communicate through an intra-transmitter signal transporter (Figs. 2 and 6, column 5, line 8-column 7, line 25 and column 10, lines 13-53). The upstream and downstream modules are transceivers (block 110). The intra-transmitter signal transporters are buses (Fig. 2, element 160 and Fig. 6, elements 500 and 570). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the transceiver as taught by Salinger could have been implemented as a plurality of upstream modules and downstream modules which communicate through an intra-transmitter signal transporter (bus) as taught by Curtis to create a network on which a plurality of transceivers could communicate and share resources which could lower the cost and enhance the capabilities of the use of each individual transceiver in the network.

Regarding claim 3, which inherits the limitations of claim 3, Curtis discloses the intra-transmitter signal transporter is a bus operated in accordance with a bus protocol that causes the compound signal to be transported thereon after experiencing varying delays (Fig. 2, element 160, Fig. 6, elements 500 and 570, column 5, line 8-column 7, line 25 and column 10, lines 13-53).

Regarding claims 19-21, Salinger discloses a transmitter for use in a communication system in which the RF transmitter transmits first and second communcation signals to one or more receivers in accordance with one or more communication protocols, the transmitter comprising:

a first software-programmable upstream module (Fig. 2, column 5, lines 32-47 and column 17, lines 5-16) programmed to apply first digital communication modulation functions to a first input signal and to generate a first processed signal which exhibits a first transport delay relative to the first input signal, the first upstream module having a first upstream connector (Fig. 2, block 30) and being configured to mingle first programmable transmission parameters with the first processed signal to form a first compound signal which passes through the first upstream connector.

Salinger does not disclose a second software-programmable upstream module (Fig. 2, column 5, lines 32-47 and column 17, lines 5-16) programmed to apply second digital communication modulation functions to a second input signal and to generate a second processed signal which exhibits a second transport delay relative to the second input signal, the second upstream module having a first upstream connector (Fig. 2, block 30) and being configured to mingle second programmable transmission parameters with the second processed signal to form a second compound signal which passes through the second upstream connector.

Curtis discloses a network including a plurality of upstream modules and downstream modules which communicate through an intra-transmitter signal transporter (Figs. 2 and 6, column 5, line 8-column 7, line 25 and column 10, lines 13-53). The upstream and downstream modules are transceivers (block 110). The intra-transmitter signal transporters are buses (Fig. 2, element 160 and Fig. 6, elements 500 and 570). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the transceiver as taught by Salinger could have been implemented as a plurality of upstream modules and downstream modules which communicate through an intra-transmitter signal transporter (bus) as taught by Curtis to create a network on which a plurality of transceivers could communicate and share resources which could lower the cost and enhance the capabilities of the use of each individual transceiver in the network. A second transceiver of Salinger would be implemented as a second upstream module to apply second digital communication modulation functions to a second input signal and to generate a second processed signal which exhibits a second transport delay relative to the second input signal, the second upstream module having a first upstream connector (Fig. 2, block 30) and being configured to mingle second programmable transmission parameters with the second processed signal to form a second compound signal which passes through the second upstream connector (a second connection in the bus) in the same manner as the first upstream module.

Regarding claim 20, which inherits the limitations of claim 19, Salinger discloses a first downstream module (Fig. 2, column 6, lines 39-59 and column 17, lines 5-16) having a first downstream connector coupled to the first output of the intra-transmitter signal transporter, the first downstream module being configured to extract first programmable the first programmable transmission parameters from the first compound signal to recover the first processed signal and convert the first processed signal into the first communication signal configured in accordance with the first programmable transmission parameters.

Salinger does not disclose an intra-transmitter signal transporter having a first input coupled to the first connector and a second input coupled to the second connector, the intra-transmitter signal transporter being configured to respectively transport first and second signals to first and second outputs of the intra-transmitter signal transporter, the first and second compound signals being transported with varying amounts of delay; and

a second downstream module (Fig. 2, column 6, lines 39-59 and column 17, lines 5-16) having a second downstream connector coupled to the second output of the intra-transmitter signal transporter, the second downstream module being configured to extract second programmable the second programmable transmission parameters from the second compound signal to recover the second processed signal and convert the second processed signal into the second communication signal configured in accordance with the second programmable transmission parameters.

Curtis discloses an intra-transmitter signal transporter having a first input coupled to the first connector and a second input coupled to the second connector, the intra-transmitter signal transporter being configured to respectively transport first and second signals to first and second outputs of the intra-transmitter signal transporter, the first and second compound signals being transported with varying amounts of delay (Fig. 2, element 160 and Fig. 6, elements 500 and 570, column 5, line 8-column 7, line 25 and column 10, lines 13-53). Curtis also discloses a network including a plurality of upstream modules and downstream modules which communicate through the intra-transmitter signal transporter (Figs. 2 and 6, column 5, line 8-column 7, line 25 and column 10, lines 13-53). The upstream and downstream modules are transceivers (block 110). The intra-transmitter signal transporters are buses (Fig. 2, element 160 and Fig. 6, elements 500 and 570). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the transceiver as taught by Salinger could have been implemented as a plurality of upstream modules and downstream modules which communicate through an intra-transmitter signal transporter (bus) as taught by Curtis to create a network on which a plurality of transceivers could communicate and share resources which could lower the cost and enhance the capabilities of the use of each individual transceiver in the network. A second transceiver of Salinger would be implemented as a downstream module to extract second programmable the second programmable transmission parameters from the second compound signal to recover the second processed signal and convert the second processed signal into the second communication signal configured in accordance with the second programmable transmission parameters in the same manner as the first downstream module.

Regarding claim 21, which inherits the limitations of claim 20, Salinger discloses the first downstream module generates the first communication signal by modulating a first carrier signal, the first carrier signal exhibiting a frequency specified by the first programmable transmission parameters and being keyed as specified by the first programmable transmission parameters (column 5, lines 32-47); and

the second downstream module generates the second communication signal by modulating a second carrier signal, the second carrier signal exhibiting a frequency specified by the second programmable transmission parameters and being keyed as specified by the second programmable transmission parameters (column 5, lines 32-47), wherein the tranceiver of Salinger is implemented into a second downstream module as described in the above rejection or claim 20.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lechleider (U. S. Patent No. 5, 426, 668) discloses transmitting a combined signal which includes transmission parameters.

Huang (U. S. Patent No. 6, 553, 076) discloses a network of transceivers communicating with each other through a bus.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 703-305-4097. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Curtis Odom
April 21, 2004

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